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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
ALSOMIRI, ISAM A	
ART UNIT	**PAPER NUMBER**
3662	

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/033,080	EHLERS ET AL.
	Examiner	Art Unit
	Isam A Alsomiri	3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 11-12, 14, 22, and 23 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. It is unclear how the at least two or more RF diode generate a harmonic product in accordance the expression (2F1 – F2 in claims 12 and 22) or (2F2-F1 in claims 14 and 23), it is unclear how two diodes will radiate (2F1-F2 or 2F2-F1) in response to F1 and F2.

Applicant should explain how the diode generates the above output, would any kind of diode work. If not, then what types of diode or combination of diodes would produce such outputs. For purpose of examination, examiner will consider any type of diodes will produce the above products. However, applicant should provide explanation of the above expressions and the diode the produce such outputs.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 34 is rejected under 35 U.S.C. 102(b) as being anticipated by Mawhinney. Mawhinney teaches a RF diode carried by an article, and responsive to two RF signals to generate a third order intermodulation product (inherently including at least the expression of twice a first one of the two RF signals less a second one of the two RF signals), the diode generate harmonic signal characteristics for RF article identification (see Abstract, col. 1 lines 10-19 and 49- 58).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 5-11, 13, 15-18, 26, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mawhinney US 4,646,090 in view of Nysen US 6,433,671. Referring to claim 5, Mawhinney discloses in figures 1-4 at least one semiconductor device carried by an article and responsive to at least two RF signals to generate an harmonic signal (see Abstract,

col. 1 lines 10-19 & 49- 58), an antenna 24 receiving an harmonic intermodulation output in response to the antenna receiving the harmonic signal. Mawhinney does not teach using a signal analyzer coupled to the antenna and responsive to the analyzer signal, Nysen teaches using an analyzer for reconstructing the symbols form the detected modulation pattern (see col. 10 lines 52-56), which reads on the claimed a signal analyzer coupled to the antenna and responsive to the analyzer signal to identify the article carrying the at least one semiconductor device. It would have been obvious to include in Mawhinney's system a signal analyzer coupled to the antenna to obtain and extract the signal's characteristic more accurately for further processing (comparison, detection).

Referring to claim 6, Mawhinney teaches at least one RF diode (see col. 1 lines 10-19 and 49-58).

Referring to claim 7, Mawhinney teaches "by way of example" f1 may range from 9.5 to 10 GHz and f2 my range from 12.0 to 12.5 (see col. 2 lines 22-26), therefore, the choice of a frequency range is arbitrary, which reads on the claimed "responds to RF signals in a frequency range from about 24.0 GHz to about 24.1 GHz".

Referring to claims 8, 17, 26, and 30, Mawhinney does not teach an antenna comprising a dipole having a length of one wavelength at one of the at least two RF signals, or determined by either one of the RF frequencies. Nysen teaches it's possible to have antenna (dipole) tuned to the interrogation waves (length of one wavelength) (see col. 6 lines 38-67). It would have been obvious modify Mawhinney's system to have the antenna at a wavelength length at one of the RF frequencies to maximize the transfer of energy between the radiation transmitted to and from the antenna.

Referring to claim 9, Mawhinney teaches a tag that comprises at least one semiconductor device comprises a signature identification of the article carrying the semiconductor device (see col. 3 lines 16-27).

Referring to claim 10, Mawhinney discloses in figures 1-4 a first signal generator 12 to generate an RF signal at a first frequency, a second signal generator 14 to generate an RF signal at a second frequency, one RF diode carried by an article and responsive to at least two RF signals to generate an harmonic signal "product" (see Abstract, col. 1 lines 10-19 & 49- 58), an antenna 24 receiving an harmonic signal. Mawhinney does not teach using a signal analyzer coupled to the antenna and responsive to the analyzer signal, Nysen teaches using an analyzer for reconstructing the symbols form the detected modulation pattern (see col. 10 lines 52-56), which reads on the claimed a signal analyzer coupled to the antenna and responsive to the analyzer signal to identify the article carrying the at least one RF diode. It would have been obvious to include in Mawhinney's system a signal analyzer coupled to the antenna to obtain and extract the signal more accurately for further analyses. Furthermore, Mawhinney does not teach "two or more RF diodes carried by an article", Mawhinney teaches only one diode is carried by an article. However, there are many types of tags that carry a transistor as a mixer which is made up of at least two diodes, also many tags or articles carry transponders with a mixer (1 diode) and a memory unit (which is made of at least one diode). Nysen teaches a tag or an article with transistors and memory unit which includes two or more diodes, which reads on the claimed two or more diodes (see col. 1 lines 26-32, and figure 30 [418]). It would have been obvious to modify Mawhinney's system to have a transistor instead of a diode or a memory unit such as a

ROM to store and modulate an ID data to distinguish between a large number of tags more accurately.

Referring to claim 13, the combination of Mawhinney and Nysen discloses in figures 1-4 antenna 24 (Mawhinney) receives the signal from the antenna to a signal analyzer (as mentioned above), the signal comprises subtraction of the first frequency signal from the second frequency signal (see col. 1 lines 49-58). Furthermore, it is obvious to use different mixers diodes that subtract a second frequency signal from the first frequency signal, or vice versa, subtraction of a first frequency from the second frequency signal.

Referring to claim 15, Mawhinney does not teach the diodes comprises a signature identification of the article. However, tags with an ID or a signature ID are known. Nysen teaches the diode comprises a signature ID (see col. 1 lines 26-32). It would have been obvious to modify Mawhinney's system to include diodes with an ID to distinguish and to determine the article more accurately.

Referring to claim 16, Mawhinney teaches "by way of example" f1 may range from 9.5 to 10 GHz and f2 my range from 12.0 to 12.5 (see col. 2 lines 22-26), therefore, the choice of a frequency range is arbitrary, which reads on the claimed "responds to RF signals in a frequency range from about 24.0 GHz to about 24.1 GHz".

Referring to claim 18, Mawhinney discloses in figures 1-4 generating at least two RF signals f1 and f2 at separate frequencies, generating an harmonic signal by at least one RF diode carried by an article and responsive to the at least two RF signals (see Abstract, col. 1 lines 10-19 & 49-68), generating a signal from antenna 24 receiving the third harmonic output, generating an article unique identification or an identification signature by the signal from antenna 24 (col. 3

lines 16-27). Mawhinney does not teach generating an analyzer signal from an antenna, and analyzing the analyzer signal to generate an article identification signature, Nysen teaches an analyzer for reconstructing the symbols from the detected modulation pattern, which inherently requires an analyzer signal, which reads on the claimed generating an analyzer signal from an antenna, and analyzing the analyzer signal to generate an article identification signature (see col. 10 lines 52- 56). It would have been obvious to include in Mawhinney's system a signal analyzer coupled to the antenna to obtain and extract the signal or the article identification signature more accurately for further analyses. Mawhinney does not teach "two or more RF diodes carried by an article", Mawhinney teaches only one diode is carried by an article. However, there are many types of tags that carry a transistor as a mixer which is made up of at least two diodes, also many tags or articles carry transponders with a mixer (1 diode) and a memory unit (which is made of at least one diode). Nysen teaches a tag or an article with transistors and memory unit which includes two or more diodes, which reads on the claimed two or more diodes (see col. 1 lines 26-32, and figure 30 [418]). It would have been obvious to modify Mawhinney's system to have a transistor instead of a diode or a memory unit such as a ROM to store and modulate an ID data to distinguish between a large number of tags more accurately.

Claims 19-21, 24-25, 28-29, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mawhinney in view of Nysen and Dames et al. Referring to claims 19-21, Mawhinney does not teach storing the article signature for subsequent identification of the

article, Dames teaches providing a data storage and retrieval system, and comparing the characteristics with known stored information in a data bank relating to items on an inventory to identify that item (see col. 2 lines 30-33 and 46- 51), which reads on the claimed storing the article signature for subsequent identification of the article, scanning the stored article signatures for identification of an article, and generating an article identification in response to scanning the stored article signature. It would have been obvious to modify Mawhinney's system to include storing article signatures and scan the stored signatures to identify the articles carrying a tag and to obtain more reliable tag detection and an accurate item identification system.

Referring to claim 24, Mawhinney discloses in figures 1-4 identification system for articles carrying a diode generating an harmonic signal (see Abstract, col. 1 lines 10-19 & 49-68). Mawhinney does not teach a spectrum analyzer responsive to an harmonic signal, the spectrum analyzer generating an identification signal, Nysen teaches an analyzer for reconstructing the symbols from the detected modulation pattern, and an output for producing information corresponding to said sequence of symbols (see col. 10 lines 52-56), which reads on the claimed a spectrum analyzer responsive to an harmonic signal, the spectrum analyzer generating an identification signal. It would have been to include the spectrum analyzer to extract the signal and obtain the article identification signature more accurately for further analyses. Mawhinney does not teach a signature memory storing the identification signatures of at least one article for identification, and a comparator responsive to the identification signal, the comparator generating an output identifying an article carrying at least one semiconductor device from the stored identification signatures, Dames teaches a data storage or a data bank for storing

tag characteristics, which reads on the claimed a signature memory storing the identification signatures of at least one article for identification (see col. 2 lines 30-34 & 1-46), Dames teaches a comparator to compare the detected characteristics with information in the data bank to identify the article carrying the tag, which reads on the claimed a comparator responsive to the identification signal, the comparator generating an output identifying an article from the stored identification signatures (see col. 2 lines 46- 65). It would have been obvious to modify Mawhinney's system to further include the signature memory and the comparator to identify the articles carrying a tag, and obtain a more reliable tag detection system and an accurate item identification system.

Referring to claim 28, Mawhinney discloses in figures 1-4 a first signal generator 12 to generate an RF signal at a first frequency, a second signal generator 14 to generate an RF signal at a second frequency, at least a diode mixer carried by an article and responsive to at least two RF signals to generate an harmonic signal (see Abstract, col. 1 lines 10-19 & 49- 58), an antenna 24 receiving an harmonic intermodulation output.

Referring to claims 25 and 29, Mawhinney discloses in figures 1-4 generating a signal from an antenna 24 receiving the harmonic signal by diode mixer, which reads on the claimed at least one semiconductor device carried by an article (see col. 1 lines 10-19 & 49-58), generating an article unique identification or an identification signature by the signal from the antenna 24 (col. 3 lines 16-27). Mawhinney does not teach generating an analyzer signal, the analyzer responsive to the analyzer signal to generate an article identification signature, Nysen teaches an analyzer for reconstructing the symbols from the detected modulation pattern, which inherently requires an analyzer signal, which reads on the claimed generating an analyzer signal from an

antenna, and analyzing the analyzer signal to generate an article identification signature (see col. 10 lines 52- 56). It would have been obvious to include in Mawhinney's system a signal analyzer coupled to the antenna to obtain and extract the signal or the article signature more accurately for further analyses.

Referring to claim 31, Mawhinney discloses in figures 1-4 generating at least two RF signals f1 and f2 at separate frequencies, generating an harmonic signal "product" by a diode carried by an article and responsive to the at least two RF signals (see Abstract, col. 1 lines 10-19 & 49-68), generating a signal from an antenna 24 receiving the harmonic signal, generating an article unique identification or an identification signature by the signal from the antenna 24 (col. 3 lines 16-27). Mawhinney does not teach generating an analyzer signal from an antenna, and analyzing the analyzer signal to generate an article identification signature, Nysen teaches an analyzer for reconstructing the symbols from the detected modulation pattern, which inherently requires an analyzer signal, which reads on the claimed generating an analyzer signal from an antenna receiving the harmonic signal (see col. 10 lines 52- 56). It would have been obvious to include in Mawhinney's system a signal analyzer coupled to the antenna to obtain and extract the signal or the article identification signature more accurately for further analyses. Mawhinney does not teach comparing the analyzer signal with stored identification signature to identify the article carrying the at least one semiconductor, Dames teaches a data storage or a data bank for storing tag characteristics, which reads on the claimed one or more stored identification signatures (see col. 2 lines 30-34 & 1-46), a comparator to compare the detected characteristics with information in the data bank to identify the article carrying the tag, which reads on the claimed comparing the analyzer signal with stored identification signature to identify the article

(see col. 2 lines 46- 65). It would have been obvious to modify Mawhinney's system to include comparing the signal with stored article signatures to identify the articles carrying a tag, and obtain a more reliable tag detection system and an accurate item identification system.

Referring to claims 32 and 33, Mawhinney does not teach storing the identification signatures for subsequent comparison with signals, Dames teaches providing a data storage and retrieval system, and comparing the characteristics with known stored information in a data bank relating to items on an inventory to identify that item (see col. 2 lines 30-33 and 46- 51), which reads on the claimed storing the identification signatures for subsequent comparison with signals, and scanning the stored signatures and generating an article identification signal in response to a comparison between the stored signatures and the signal. It would have been obvious to modify Mawhinney's system to include storing article signatures and scan the stored signatures to identify the articles carrying a tag and to obtain more reliable tag detection and an accurate item identification system.

Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mawhinney in view of Nysen and Dames et al. as applied to claim 24 above, and further in view of Shimamura et al. The combination of Mawhinney, Nysen, and Dames does not teach a display responsive to the signal generated by the comparator to indicate identification of an article. Shimamura teaches display responsive to the signal generated by the comparator to indicate identification of an article (see col. 1 line 67 – col. 2 line 19). It would have been obvious to

modify the combination of Mawhinney, Nysen, and Dames' system to further include a display to be able to identify the article carrying the tag via the display for convenience.

Allowable Subject Matter

Claims 22 and 23 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, set forth in this Office action.

Claims 11-12, 14 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed January 21, 2004 have been fully considered but they are not persuasive. Regarding claim 34, applicant amended the claimed to recites "at least one RF diode carried by an article and responsive to at least two RF signals to generate an harmonic signal having a third order intermodulation product defined by the expression of twice a first one of the two RF signals less a second one of the two RF signals . . .". However, as mentioned above, it's inherent that the diode will produce the claimed product in response to the two RF signals. The applicant is only claiming what the diode(s) will produce.

Regarding claims 5-11, 13, 15-18, 26, and 30, applicant argues that the combination of Mawhiney and Nysen to teach the claimed signal analyzer is improper. However, signal

analyzers are well known and are used widely in many different systems that require analyzing signals or extracting information from signals. The main idea for an analyzer is to obtain and extract information from signals. As mentioned in the office action Nysen teaches a signal analyzer. The signal analyzer of Nysen does not need to be in a similar system to have a proper combination. The present invention is not the signal analyzer; it just uses a signal analyzer which is very well known. Therefore, the combination of Mawhiney and Nysen is proper.

Similarly regarding claims 19-12, 24, 25, 28, 29, 31-33, applicant argues that the combination of Mawhiney, Nysen, and in further view of Dames is improper, because dames' system is directed to magnetic tags not RF tags. However, the combination of Dames is proper because he is combined to merely teach the claimed storing the article signature, scanning the stored article signature for identification of an article; the process of storing signature and scanning the signatures for identification is well known based on the teaching of Dames. Even though the tags in Dames are magnetic tags not RF tags, the idea of storing signatures and reading signatures is well known using both types of tags. Dames is combined for the idea of storing and scanning tags signature; which can be done in many types of tags, whether magnetic or RF tags.

Regarding claim 27, applicant does not explain why the combination of Mawhiney, Nysen, Dames, and in further view of Shimamura et al. is improper.

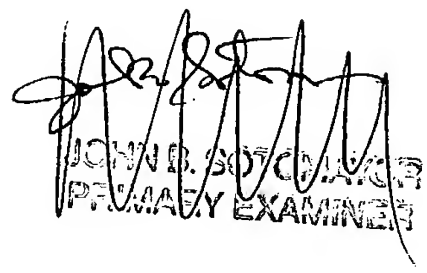
Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Isam A Alsomiri whose telephone number is 703-305-5702. The examiner can normally be reached on Monday-Thursday and every other Friday (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H Tarcza can be reached on 703-306-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Isam Alsomiri

JOHN B. SOTOMAYOR
PRIMARY EXAMINER

April 30, 2004